



Drug Testing in Schools: A Brief Review and Analysis of Recent Events

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ABSTRACT

Random drug testing (RSDT) in schools is a controversial topic. The U.S. Supreme Court has ruled that RSDT is constitutional for certain groups of students. Moreover, funding has been made available for schools to implement RSDT programs through the U.S. Department of Education and the White House Office of National Drug Control Policy. This review provides a comprehensive review of the literature, as well as a summary of recent RSDT events in U.S. public schools. Empirical data that examine RSDT's effectiveness for reducing student drug use is also reported. The implementation of statewide RSDT programs is on the rise, as well as continued support, funding and advocacy through various government channels. Little empirical research examining the effectiveness of RSDT to reduce student drug use has been completed although the largest evaluation of RSDT programs to date is presently underway. RSDT in schools is a polarizing topic, and has been politicized. It is important for school health educators to understand this issue because they play an important role in student drug use prevention and should be involved in discussions of RSDT implementation.

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INTRODUCTION

It is widely accepted that drug use negatively impacts student health and wellness. As school health educators, it is not difficult to observe the detrimental effects of drug use in schools. Drug use has been associated with a variety of undesirable behaviors including increased truancy,¹ absenteeism and aggression.² Students who use drugs are also more likely to drop out of school, bring guns to school, steal and be involved in fighting or other aggressive or violent behaviors.³⁻⁵ In addition, national studies of school crime have also found that students who report that they can obtain drugs at school have greater fear of violence or attack while at school.⁶ Furthermore, the use of drugs puts students at considerable risk for a variety of adverse events, including the leading causes

of adolescent morbidity and mortality, such as unintentional injury, accidents, suicide and homicide.⁷

A variety of interdictions are currently used to prevent drug use in schools and on school property, including closed circuit cameras, locker searches and narcotics-detecting "sniff dogs."⁸ Random, suspicionless drug testing (RSDT) has become a more widely used method of student drug use deterrence⁹ with 25.5% of U.S. middle or secondary schools having implemented RSDT programs in 2006.¹⁰ This figure compares to only 13% of schools indicating RSDT in 2003.¹¹ Whereas RSDT prevalence varies widely among school districts across the U.S., the use of RSDT clearly has increased significantly during this time. Moreover, the scope of RSDT in schools has broadened,

thus adding to the debate between student privacy rights against unreasonable searches protected by the 4th Amendment and a school district's interest in preventing student drug abuse and maintaining safe and healthy environments. In the midst of this debate, and the constantly changing dynamics of RSDT, it is important to have a firm understanding of both the legal basis for RSDT and recent trends in its use.

Support for RSDT emanates from various governmental institutions, including both the U.S. Department of Education (USDE) and White House Office of National

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Drug Control Policy (ONDCP). The School Based Student Drug Testing Program, published through the USDE, provides funding to develop, implement, or expand drug-testing programs for students who participate in school athletic programs, or who are engaged in extracurricular or school-sponsored activities. Between 2005 and 2007, the USDE awarded over \$31 million for RSDT programs to schools nationwide.¹² In August of 2008, the USDE, in conjunction with the ONDCP, established the Student Drug Testing Institute, whose mission is to provide timely information pertinent to school-based RSDT programs and to represent “coordinated, one stop resource”¹³ for RSDT information. The ONDCP has also endorsed RSDT, emphasizing its effectiveness to address the “public health problem” of student drug use.¹³ It has also organized various educational summits on RSDT, as well as published resources and literature promoting the use of RSDT in schools. These recent endorsements indicate that RSDT is a method of student drug prevention advocated for at the highest levels of government and education. In addition, these events may indicate a greater interest in, or utilization of, RSDT by schools. Nevertheless, there is little empirical data supporting the effectiveness of RSDT,¹⁵ and there is a concern that such programs may have unintentional consequences, such as deterring athletic and/or extracurricular activity participation among students. Furthermore, other recent events, including various Court decisions, may reflect a belief that student search and seizures are only constitutional in extreme circumstances,¹⁶ and that support for RSDT may be waning.¹⁷

THE LEGAL HISTORY OF RSDT IN SCHOOLS

To understand a school health policy issue such as RSDT, it is important to be aware of its legal history and evolution. A student’s right to privacy within U.S. public schools is governed by 4th Amendment protections against unreasonable search and seizure. School districts do have the ability to perform certain student search and seizure

protocols (locker searches, canine searches, etc.) through the legal concept of *in loco parentis*, meaning that school officials stand in place of parents/guardians in maintaining discipline, supervision, and safety. As a result, school officials have traditionally not been considered “officials of the state,” and thus, are not subject to the limitations of needing probable cause and/or a search warrant to carry out random search and seizure protocols, including RSDT.¹⁸ Many school districts cooperate with local law enforcement when conducting student searches. However, school administrators still have the ability to conduct a student search when reasonable suspicion exists. They also do not require a search warrant when performing such searches. Reasonable suspicion may result from an eyewitness account, a tip or information from a reliable source, suspicious behavior, drug or alcohol odor, or behavior consistent with intoxication.¹⁸

In the 1969 landmark case of *Tinker v. Des Moines Independent School District*,¹⁹ the U.S. Supreme Court defined public school student constitutional rights, concluding that constitutional protections do apply to public school students. Sixteen years later, in *New Jersey v. Tracey Lis Odem* (T.L.O.),²⁰ the Court established precedent specifically addressing student rights of privacy against unreasonable search and seizure. This case involved the search of a high school student who was caught smoking. When searched, she was found to be in possession of drugs and drug paraphernalia. The student challenged the search, claiming it violated her 4th Amendment protections against unreasonable searches. The Court decided that the search was constitutional and concluded that although 4th Amendment protections apply in schools and to students, officials need not obtain a search warrant or have probable cause to perform a search. This decision greatly expanded a school districts’ ability to perform student searches and diluted student 4th Amendment protections. The justification for this decision was that it is necessary for schools to act quickly when disciplining students and maintaining school and student safety. The

T.L.O. decision subjected school searches to a standard that required that all searches must be justified at their inception, and that the search be reasonably related in scope to the situation that justified the search initially.²⁰ The T.L.O. case would become the precedent for future court cases concerning student RSDT programs.

In 1995, the specific issue of RSDT in public schools was brought before the U.S. Supreme Court. In *Vernonia School District v. Acton*,²¹ the Court upheld the use of a RSDT program for student-athletes. Vernonia, a public high school in rural Oregon, instituted a RSDT program for all student-athletes after both teachers and administrators noticed a significant increase in problems associated with widespread student drug use. This increase was especially noted in the student-athlete population, some of whom were identified as ringleaders of a worsening “drug culture” within the school that was described as having reached epidemic proportions. A Vernonia student-athlete challenged the constitutionality of the RSDT program, with the U.S. Supreme Court upholding its constitutionality, and establishing RSDT as a viable means to combat student drug use.

In *Vernonia*,²¹ the Court held that the use of RSDT did not require a warrant or probable cause when a “special need” existed. The *Vernonia* case established and documented that a drug culture within a school constituted a “special need.” The Court further found that the program did not intrude on student privacy due to the “custodial and tutelary nature” of the school districts’ authority over students, and that student-athletes possessed reduced privacy rights. It concluded that collection of a urine sample resembled normal conditions found in a public restroom or locker room. The Court further held that the school had a compelling interest in conducting the RSDT program because of the drug problem that existed, and the concomitant disciplinary problems that were the manifestation of student drug use.¹⁸ As a result of this decision, school districts have increasingly used RSDT as a deterrent. The *Vernonia* decision²¹ became



the basis through which legal precedent concerning RSDT would be set, thereby influencing future cases that would address RSDT in schools. As a result of this decision, the Vernonia balancing test was developed to balance student privacy with the school district interest of preventing student drug use. The Vernonia balancing test would later be used to determine the constitutionality of future RSDT cases.²²

In 2002, the U.S. Supreme Court further reinforced the constitutionality of RSDT in schools in the case of *Earls v. Pottawatomie County School District*.²³ The school district adopted a RSDT policy that required all students to consent to RSDT as a prerequisite for participation in extracurricular activities. It required that students submit to RSDT prior to and during participation, and at any time upon reasonable suspicion of drug use.²³ Utilizing the Vernonia balancing test, the Court concluded that the school's concern was important and that the RSDT policy "effectively served the school district's interest of protecting the safety and health of its students."²³ Relying heavily on the Vernonia decision,²¹ the Court held that the RSDT program was constitutional, and that "students who participate in competitive extracurricular activities voluntarily subject themselves to many of the same intrusions on their privacy as do athletes." The majority concluded that preventing student drug use outweighed the privacy rights of students participating in extracurricular activities.¹⁸ This decision became a major expansion of what was considered constitutional, and gave many school districts the legal clarification and leverage they had been awaiting, and concomitantly led to widespread implementation of RSDT.

The *Earls* decision²³ was unique and represented a broadened scope of constitutionality for RSDT in public schools. First, the school district had not documented nor identified a drug problem, and thus, no "special need" existed. This varied greatly from what had been found in the Vernonia decision. Second, the *Earls* decision expanded the constitutionality of RSDT to any student who participated in school-sponsored

extracurricular activities. In Vernonia,²¹ it was found that RSDT was constitutional only among student-athletes, given that this group was fueling what was called a "drug culture" and had manifested itself in many undesirable side effects.

Whereas most past decisions pertaining to RSDT have supported its constitutionality, a recent State Supreme Court decision in 2008, was not supportive of the constitutionality of student RSDT programs. In the fall of 1999, the Wahkiakum School Board adopted a policy that mandated that students who participated in extracurricular activities were subjected to RSDT as a prerequisite for participation. The policy was adopted without evidence of a significant drug use problem, or any documentation that disciplinary or health problems had increased as a result of student drug use. The Washington State Supreme Court ruled unanimously in *Hans York v. Wahkiakum School District*¹⁷ that RSDT is unconstitutional under the State constitution, citing a student's "genuine and fundamental privacy interest in controlling his or her own bodily functions."

This decision was based in part on concerns that if the Court supported the school district policy, in the future this ruling could make it more likely that RSDT constitutionality could expand to the entire student population. The presiding judges felt strongly about this possibility, specifically referencing in their decision that the school district had no observable drug problem, and that no "special need" existed.¹⁷ On the heels of the *Hans York* decision, another recent U.S. Supreme Court decision of 2009 was not supportive of aggressive methods of student searches, and may have ramifications on the climate of student search and seizure protocols in the future. In *Safford Unified School District v. Redding*,¹⁶ the Court found that the strip search of a student was unconstitutional. In this decision, the Court concluded that the school district overstepped its limits when it requested a search of the student's underwear when searching for ibuprofen that they believed she had brought to school. Whereas this case does not address RSDT specifically, the ruling

may indicate that student searches are only acceptable in extraordinary circumstances. The influence that this ruling may have on future drug testing decisions is not presently known. The decision may cause school districts to rethink or reevaluate current or future RSDT programs.

The recent nature of these two decisions makes their effect on long-term implications of RSDT constitutionality unknown. Opponents of RSDT have argued that the constitutionality of drug testing an entire student body could be the next case the U.S. Supreme Court could hear. Although most legal decisions over the past decade have supported RSDT, the boundaries of RSDT constitutionality continue to be tested.

STATEWIDE RSDT PROGRAMS

A recent trend relevant to RSDT in schools has been the implementation of statewide RSDT programs for student-athletes. Prior to 2006, no such RSDT program existed in the U.S. Whereas most of these RSDT programs focus on the use of performance-enhancing drugs (PED), they often also include screening for other illicit drugs. Ten states presently either have, or are considering statewide RSDT programs.²⁴ In 2006, New Jersey became the first state to implement a statewide RSDT program. During its first year, New Jersey's RSDT program resulted in no positive tests among the 150 randomly tested student-athletes.²⁵ Results from the Illinois statewide RSDT program, which began in 2008, were similar. Of the 264 student-athletes tested, none were found to have violated the policy.²⁶

These results in Illinois, where no students tested positive in the statewide RSDT program, have certainly generated controversy. Seven students initially tested positive for banned substances, but were subsequently granted medical exemptions clearing them from the consequences of testing positive.²⁶ It is plausible that the students initially testing positive were legitimately using these substances under the care of a physician for medical purposes; however, some worry that such false-positives may undermine the deterrent effect of RSDT. Over time, the de-



terrent effect of RSDT may be compromised by creating the perception among student-athletes that “loop-holes” exist, and that if a drug test is failed, they can subsequently be cleared from consequences. Opponents also state that the Illinois program, which focuses primarily on PED and anabolic-androgenic steroid (AAS) use by student-athletes, is unnecessary because use of these substances has been found to be similar between both students and student-athletes.²⁷ They further cite that PED and AAS prevalence rates have already been decreasing among adolescents during the recent past.²⁸ Others speculate that the cost of this program, which was approximately \$150,000,²⁶ was not a worthwhile investment because no student-athlete tested positive.²⁶ Still others claim that the RSDT program was a success and effectively deterred use of these drugs, since no individual tested positive.²⁶ During the summer of 2009, Illinois expanded its RSDT program to include year-round drug testing, in addition to its previous policy where student-athletes were drug tested only during post-season competition.²⁹

Other states, including Florida, California, Rhode Island and Texas are considering, or have already adopted, similar RSDT programs.³⁰ In Texas, a RSDT program that requires all Texas high school student-athletes to agree to RSDT began in 2008.³¹ This program created the largest RSDT program in the U.S., larger in scope than RSDT programs currently in place within professional sports or the NCAA. Under Texas’s RSDT plan, which encompasses over 724,000 high school student-athletes, up to 3% of all student-athletes are tested, at an estimated annual cost of approximately \$6 million.³¹ In Florida, a similar (albeit smaller) statewide RSDT program was also implemented in 2008. This RSDT program tested 1% of student-athletes from six different sports.³² After one year, this program was eliminated due to inconclusive findings that indicated the plan did not effectively address the use of drug use among student-athletes and concerns related to its cost.³³

A common criticism of RSDT programs is that the cost is too great, and that fund-

ing would be better spent on educational programs or other school district needs. The cost of RSDT can be considerable, depending on the magnitude and scope of the RSDT program. This point was exemplified after Florida’s statewide RSDT program was eliminated after one year, in part, because of its cost.³³ The cost of RSDT programs can be considerable, ranging between \$14 and \$30 each for standard drug screening, to over \$100 for more specialized testing that screens for AAS and other PED’s.³⁴

RSDT PROGRAM EFFECTIVENESS

Another area of concern pertaining to RSDT programs relates to their effectiveness of reducing student drug use. Research results are inconclusive. Some research has concluded that RSDT effectively reduces student drug use¹⁵ and is also overwhelmingly supported by school district administrators. McKinney³⁵ concluded, in a survey of Indiana high school principals where RSDT programs were currently in place that most principals believed that RSDT has no impact on school morale and does not reduce student participation in sports or extracurricular activities. Furthermore, they reported that the financial cost associated with RSDT is overstated. Goldberg and colleagues¹⁵ have also reported that RSDT was effective at reducing past 30-day PED and illicit drug use among Oregon high school students. In addition, it has been proposed that a “reverse peer pressure” effect may be present as a result of RSDT programs, whereby students not interested in experimenting with illicit drugs have the ability to decline use, citing the RSDT program and the chances of testing positive.⁹

Not all research examining the effectiveness of RSDT is supportive. In a national sample of U.S. high school students, Yamaguchi and colleagues⁸ found no statistical difference in illicit drug use among students who were subject to RSDT. The authors found no association between schools that employed drug testing and reported drug use by students. Data was obtained through an analysis of two data sets. Student drug use data was retrieved from the Monitoring the

Future (MTF) study published through the National Institutes of Health, which consists of a nationally representative sample of 8th, 10th and 12th grade students. School district characteristics, including drug testing use, was collected from school administrators employed at schools participating in the MTF research via the Youth, Education and Society study supported through the Robert Wood Johnson Foundation®. The authors concluded that among both athletes and non-athletes, that RSDT has no effect on either frequency or prevalence of illicit drug use. Many opponents of RSDT in schools point to this study as compelling evidence that drug testing in schools is ineffective. Whereas the Yamaguchi et al.⁸ study provides the most detailed analyses of RSDT effectiveness, the authors acknowledged that the study’s cross-sectional design did not allow for the determination of a cause-effect relationship between RSDT and student drug use. To date, no randomized studies of RSDT effectiveness in schools are available, which the authors further conclude would be the ideal mechanism for establishing a definitive association between RSDT in schools and student drug use.

Taylor³⁶ has speculated that compensating behavior effect would also be a reason why RSDT would not effectively reduce student drug use. This phenomenon describes the influence that an RSDT program can have, whereby a drug testing policy would cause students who use illicit drugs to quit participating in extracurricular activities as a means to evade drug testing and continue, or perhaps increase, drug use. Taylor thus hypothesized that RSDT would be ineffective. However, his analysis does not include any quantitative data or empirical evidence to support his theory. Because sports participation has been documented to protect against illicit drug use by student-athletes,³⁷ keeping students involved in extracurricular activities should be a priority for school districts, given that it can be an effective method of preventing drug use in and of itself.

The National Impact Evaluation of Mandatory-Random Student Drug Testing,³⁸ a four-year study funded by the USDE’s



Institute of Education Sciences to assess the effects of school-based mandatory RSDT programs, will provide a clearer picture of RSDT effectiveness. The sample is comprised of school districts and schools that received grants from the Office of Safe and Drug-Free Schools to implement mandatory RSDT programs. The study includes the collection of school-level drug testing results and data generated through student surveys, school-wide record review and analysis, and staff interviews. The study will be the first to examine this topic and will contribute considerably to knowledge about the impact of RSDT programs on the reduction of student substance use.³⁸ If results find RSDT to be effective, it may provide a stimulus for an increase in RSDT use.

With the increase in RSDT use among school districts nationwide, legitimate concerns have also been voiced regarding the drug testing of students.³⁹ It has been observed that students identified by RSDT with substance use problems have switched from the use of those easily tested for substances, such as marijuana, to substances that are more difficult to test for, not tested for at all, and in many circumstances substances that are actually more dangerous, such as inhalants.³⁹ Furthermore, many voice concerns that typical drug tests do not include screening for alcohol use. Given that alcohol and tobacco are the most commonly used substances among students and both are largely ignored by standard school RSDT programs is a major flaw. According to the National Institutes on Drug Abuse,⁴⁰ alcohol does not remain in the blood long enough for most tests to detect current use, which leads to the inability to detect alcohol use via traditional drug screens. However, because it is common for many drug users to use multiple drugs simultaneously, including alcohol, identification of other drugs may also include, by extension, alcohol use. If this is the case, it would support current RSDT practices and allow for an indirect method of preventing alcohol use and potentially identifying alcohol abusers by identifying student drug users and intervening at an early age.

The consequences for failed drug tests are specific to the school or state RSDT policy in place and can vary considerably. In fact, whereas some schools implement RSDT programs, others implement voluntary testing or drug testing under suspicion programs. Consequences for failed drug tests often vary considerably given the various types of drug testing programs. Of most RSDT programs in place within U.S. public schools, the consequences for students who test positive for drug use are often non-academic and non-criminal in nature. Most commonly this means the student is unable to participate in school sports or extracurricular activities until various benchmarks are achieved, such as mandatory counseling, referral to a drug treatment facility, and/or passing subsequent drug tests. Most RSDT programs focus on identification of students rather than “catching” them.³⁸ According to the USDE,² the primary goal of RSDT in schools is not to punish students who use drugs, but to deter experimentation, prevent drug dependence and to assist drug-using students in becoming drug-free. Students who test positive may require intervention before they become dependent on drugs, and the potential to identify these students at an early age is appealing for individuals committed to preventing student drug use. It would be possible for early intervention to take place, as well as follow-up testing, counseling and referral to drug treatment if necessary. Most RSDT programs, as well as most governmental institutions supporting it, stress that a student should not face any academically or legally punitive consequences because of a positive drug test.

The issue of RSDT accuracy has also been cited as a criticism of current programs. Upwards of 10% of adolescent drug test screens are susceptible to error.⁴¹ Many schools employ safeguards against situations such as this, such as subsequent follow-up tests after positive tests, to verify test results.⁴¹ Among small school districts, that only drug test small groups of students and thus would be expected to have very few false positives, this concern may not be as great. Among large school districts, statewide RSDT programs,

or school districts that subject entire student bodies to RSDT, higher numbers of students may be exposed to the potentially negative consequences of a false positive test. In addition, knowledge of the occurrence of false positives may create a perception among students that the entire RSDT program is flawed, unfair, or inaccurate. In situations such as this one, it is unlikely that RSDT would garner support among students, parents, or the community. Ensuring accuracy of drug tests must be a point of emphasis.

Early criticism of RSDT also focused on the potentially embarrassing requirement of producing a urine sample while being observed,²¹ and this sentiment was recently echoed by the presiding U.S. Supreme Court judges.¹⁷ However, this procedure is necessary to ensure that student urine samples are not being manipulated. The U.S. Supreme Court ruled that this intrusion was not unreasonable for certain groups of students, yet many school districts are still not comfortable with students being observed or supervised while providing a urine sample. It is therefore reasonable to predict that many parents would also question the appropriateness of subjecting the children to a potentially embarrassing situation. With advances in drug testing, it is now possible for drug testing screens to include those other than urine. It is now more common for saliva and/or hair samples to be utilized when performing drug screening.³⁸ With this improvement, it is now easier for students to provide samples without the potentially uncomfortable situation of providing urine while being observed. As this technology continues to improve and drug tests become easier, cheaper, and less uncomfortable, an increase in the use of RSDT programs by school districts may occur.

DISCUSSION

For school health educators, illicit drug use is an important issue pertaining to student health and wellness. The implementation of RSDT programs in schools represents an aggressive approach to deter student drug use and has become more common in school districts nationwide.¹⁰ The legal basis



for schools to use RSDT to prevent student drug use does exist, but the U.S. Supreme Court has only ruled that they are constitutional for certain groups of students. Some authorities predict that in the near future the use of RSDT programs to test entire student populations may increase, citing that some schools already implement these methods of drug testing. Given the complexity of implementing a school RSDT program, it is imperative that school districts seek legal expertise to help navigate and comply with the many, often conflicting, federal, state and local laws pertaining to RSDT. Whereas the use of RSDT in U.S. schools remains a controversial topic, one thing both opponents and proponents can agree on is that adolescent drug use represents a serious threat to the health and well-being of students. How best to address this serious issue has not been determined.

Whereas some recent events may point to a deceleration of RSDT constitutionality and implementation, others do not. The U.S. House of Representatives has approved the Student and Teacher Safety Act of 2007, which reinforces past U.S. Supreme Court decisions on RSDT and mandates the development of policies for reasonable and permissible drug searches. This bill is presently awaiting Senate deliberation and possible approval.⁴² If passed, the bill may give school districts more reason to explore or implement RSDT programs.

It is important that school health educators possess accurate and timely information on the status of RSDT in public schools. Because RSDT programs may have a direct effect on student health, it is important for school health professionals to understand the issue, as well as the potential implications. In addition to educating students about the dangers of drug use, informed school health professionals can also serve as an important resource for administrators and school board members as they consider options for preventing student drug abuse. Many local decision makers may view RSDT as the solution to the drug problem. Health educators who are involved in the decision-making process can help others view RSDT

not as the solution, but as a possible tool to consider using as part of a coordinated school health program.

School health professionals must continue to remind school officials that RSDT should only be one component of a comprehensive school drug prevention program, and should play an active role in any discussion that occurs within school districts about its use. Furthermore, school health educators may also be in a position to assume a role in the education and rehabilitation of students testing positive, in situations where RSDT programs are implemented. Finally, school health educators should position themselves to disseminate information and research to the community and decision-makers, advocate for involvement in the decision-making process and play a role in any process addressing student health and wellness.

REFERENCES

1. Chou LC, Ho CY, Chen CY, Chen WJ. Truancy and illicit drug use among adolescents surveyed via street outreach. *Addic Behav.* 2006;31(1):149-154.
2. United States Department of Education. *School Based Student Drug Testing Programs.* Washington, DC; 2006. Available at <http://www.ed.gov/programs/drugtesting/index.html>. Accessed: March 15, 2008.
3. United States Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Office of Applied Studies. National Survey on Drug Use and Health, 2007.
4. Kingery PM, Pruitt BE, Hurley RS. Violence and illegal drug use among adolescents: evidence from the U.S. national adolescent student health survey. *Subst Use Misuse.* 1992;27(12):1445-1464.
5. Lowry R, Cohen LR, Modzeleski W, Kann L, Collins JL, Kolbe LJ. School violence, substance use, and availability of illegal drugs on school property among U.S. high school students. *J Sch Health.* 1999;69(9):347-355.
6. Chandler KA, Chapman CD, Rand MR, Taylor BM. Students' Reports of School Crime: 1989 and 1995. Washington, D.C.: U.S. Department of Education and Justice publication NCES 98-241/NCJ-169607.
7. Hallfors D, Vevea JL, Iritani B, Cho HS, Khatapoush S, Saxe L. Truancy, grade point average, and sexual activity: a meta-analysis of risk indicators for youth substance use. *J Sch Health.* 2002;72(5):205.
8. Yamaguchi R, Johnston DJ, O'Malley PM. Relationship between student illicit drug use and school drug-testing policies. *J Sch Health.* 2003;73(4):159-164.
9. Evans GD, Reader S, Liss HJ, et al. Implementation of an aggressive random drug-testing policy in a rural school district: student attitudes regarding program fairness and effectiveness. *J Sch Health* 2006;76(9):452-458.
10. Jones SE, Fisher CJ, Greene BZ, et al. Healthy and safe school environment, part I: Results from the school health policies and programs study 2006. *J Sch Health.* 2007;77:522-543.
11. National Federation of State High School Associations (NFHS). Thirteen percent of high schools have drug-testing policy. NFHS, National Interscholastic Athletic Administration, National Center for Drug Free Sport, Inc. Joint Press Release. August 2003.
12. United States Department of Education, Office of Communication and Outreach. Guide to U.S. Department of Education Programs: 2007. Washington DC. 204-205.
13. The Student Drug-Testing Institute. 2009. Available at: <http://sdti.ed.gov/about.aspx>. Accessed May 1, 2009.
14. Planas A. High school drug testing promoted. *Las Vegas Review-Journal.* April 25, 2007.
15. Goldberg L, Elliot DL, MacKinnon DP, et al. Drug testing athletes to prevent substance abuse: Background and pilot study results of the SATURN (student athlete testing using random notification) study. *J Adol Health.* 2003;32:16-25.
16. *Safford Unified School District v. Redding*, 557 U.S. (2009).
17. *Hans York v Wahkiakum School District*, 200, No. 26694-6-II, (2002).
18. Alexander K, Alexander MD. *American Public School Law* 6th ed. Thomson West Publishing. 2004.
19. *Tinker, et al v Des Moines Independent Community School District*, 393 US 503 (1969).
20. *New Jersey v T.L.O.*, 469 US 325 (1985).
21. *Vernonia School District, 47J v Acton*, 515



US 646 (1995).

22. Miller-Rothgary K. Kids, drugs and school intervention: how far can a public school go in drug testing its students? *Washington University Law Quarterly*. Wash U.L.Q. 1123 Winter 2003.

23. *Board of Education of Independent School District No 92 of Pottawatomie County v Earls*, 536 US 822 (2002).

24. Ulrich L. Safe from steroids? *Training & Conditioning*. May/June 2008;39-49.

25. Goldstein E. NJSIAA: Testing deterring athletes. *The Bridgetown News*. February 23, 2007.

26. Sakamoto B. IHSA announces fall drug testing results. *The Chicago Tribune*. January 13, 2009.

27. Miller KE, Barnes GM, Sabo DF, Melnick MJ, Farrell MP. Anabolic-androgenic steroid use and other adolescent problem behaviors: rethinking the male athlete assumption. *Sociological Perspectives*. 2002;45(4):467-489.

28. National Institute on Drug Abuse. NIDA InfoFacts: High School and Youth Trends. Available at: <http://www.drugabuse.gov/Infofax/HSYouthtrends.html>. Accessed on:

May 15, 2009.

29. Nevel J. Illinois senate approves plan to drug test more athletes. Available at: QCVarsity.com. Accessed on: October 10, 2009.

30. Considine B. Poll finds support for drug tests. *The Courier News*. November 25, 2006. Available at: <http://www.c-n.com/apps/pbcs.dll/article?AID=/20061112/NEWS/611120313>.

31. Stutz T. Dewhurst: schools need steroid testing. *The Dallas Morning News*. October 20, 2006.

32. Adelson A. Florida must rethink its plan for steroids tests. *The Orlando Sentinel* May 28, 2008.

33. Larimer S. Steroid testing of Florida schools' athletes ends over money. *TC Palm News*. February 16, 2009.

34. Volpert TR, Tremaine DW. Drug testing of interscholastic athletes in public schools. In National School Boards Association (Ed.). *Legal Handbook on School Athletics* 1997.

35. McKinney JR. The effectiveness and legality of random student drug testing programs revisited. *West's Education Law Reporter*. February 23, 2007.

36. Taylor R. Compensating behavior and the drug testing of high school athletes. *The Cato Journal* 1997;16(3). Available at: <http://www.cato.org/pubs/journal/cj16n13-15.htm>. Accessed: December 15, 2008.

37. Sabo D, Miller, KE, Melnick MJ, et al. Athletic participation and risks of adolescent males: A national study. *Int J Mens Hlth*. 2002;1(2):173-194.

38. The Students Drug Testing Institute. Frequently asked questions about student drug testing. June 2009.

39. Knight JR, Levy S. The National Debate on Drug Testing in Schools. *J Adol Health*. 2007;41:419-420.

40. National Institutes on Drug Abuse. 2009. Available at: www.drugabuse.gov/drugpages/testingfaqs.html. Accessed: September 14, 2009.

41. Levy S, Vaughn BL, Angulo M, et al. Results of random drug testing program in an adolescent substance abuse program. *Pediatrics* 2007;119:e843-8.

42. Loesevitz M. Random drug testing in public schools. *J Ed & Law*. 2007;36(3):453-460.